Statement of

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On Behalf of the

National Association of Real Estate Investment Trusts®

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Real Estate Investment Trusts (REITs):
Can They Improve the Thrift Savings Plan?

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Statement submitted to the Subcommittee on the Federal Workforce and Agency Organization on April 19, 2005, pursuant to a hearing on H.R. 1578, the Real Estate Investment Thrift Savings Act.

My name is Steven A. Wechsler and I am President and CEO of the National Association of Real Estate Investment Trusts. NAREIT is the representative voice for real estate investment trusts (REITs) and publicly traded real estate companies worldwide. Thank you for the opportunity to testify on this matter of importance to the entire federal civilian and military workforce. To begin, NAREIT expresses its strong support for H.R. 1578, the Real Estate Investment Thrift Savings Act, and thanks all its sponsors, especially Chairman Porter, Mr. Van Hollen and Chairman Davis.

The Federal Thrift Savings Plan

The Federal Thrift Savings Plan for federal employees is the largest defined contribution plan in the country, with total assets of approximately $152 billion as of December 31, 2004. Congress designed the Thrift Savings Plan to provide federal civilian and military employees with an opportunity for retirement and tax-deferred savings similar to those private corporations and other organizations that offer their employees under 401(k), 403(b) and other such plans.

Since 1988, the Congress, the Federal Retirement Thrift Investment Board (Board) and the Thrift Savings Plan (TSP) staff have developed, refined and maintained an excellent base model for well-conceived defined contribution plans. The plan provides participants with a well-focused set of core investment choices utilizing low-cost index funds that minimize expenses and maximize returns to the participants.

In recent years, Congress and the Board also have initiated a series of innovative actions that have appreciably enhanced the TSP savings program for its participants and that will continue doing so for many years to come. Introducing the S Fund (small capitalization stocks) and the I Fund (international stocks) in 2001 provided plan participants the opportunity to further diversify their investments into two widely recognized core assets. And sometime this year the Board, under the leadership of Chairman Saul, will provide plan participants with access to a new set of life cycle funds, a wise decision that recognizes the pace of ongoing developments in the private sector.

It is important to recognize that three separate programs comprise the platform on which federal employees may build for their future financial and retirement security. The first two of these three programs provide defined benefits with minimal risk and include a traditional defined benefit annuity and a supplemental defined benefit annuity from social security. The Thrift Savings Plan provides a second supplemental savings program that offers plan participants the opportunity to earn higher returns commensurate with higher risk. In this light, it is appropriate that TSP participants are offered an appropriate selection of investment opportunities that provide access to a reasonable spectrum of risk and return tradeoffs.

Responding to a New Investment Landscape

Looking ahead, all small investors will face new challenges on the investment landscape. Today, everyone saving for retirement must address the future outlook for investment returns, in part by seeking new portfolio diversification opportunities. And while the private sector shifts ever further away from traditional pension plans and their guaranteed benefits to defined contribution plans, such as 401(k) plans, individual investors are accepting a growing responsibility for managing their financial future.

As this shift occurs, important opportunities to increase returns on retirement savings and to more effectively reduce the risk of those investments remain available to all individual savers, including TPS participants. However, those opportunities are available to participants only if they are provided with the tools to access those opportunities and only if they are given the choice. Investment research demonstrates that the TSP can be further improved, and the retirement benefits to federal workers appreciably enhanced, by adding one or more low-cost, core or distinct assets with proven long-term investment performance and diversification benefits. To effectively utilize new and existing investment options, plan participants also require appropriate education and guidance in choosing among these options.

One such proven asset is commercial real estate investment.

Real Estate as a Core Asset

For decades, traditional pension plans, also known as defined benefit plans, as well as major endowments and foundations, have included an allocation to commercial real estate in their investment portfolios. For example, the nation's largest corporate defined benefit plan − that of General Motors, with $87 billion in assets − reported a real estate allocation of 8.0 percent as of September 30, 2004. At the same time, the nation's largest public defined benefit plan − that of the California Public Employees Retirement System, with $168 billion in assets − reported a real estate allocation of 7.5 percent. And the nation's largest endowment – that of Harvard University, with about $20 billion in assets – reported a real estate allocation of 10 percent at last report.

The professionally trained investors managing these plans recognize the long-term performance attributes of commercial real estate investment, including consistent, long-term returns, low volatility, reliable dividend income, capital preservation and critical diversification benefits. And while direct property investment at large institutional investors often accounts for the larger share of their real estate allocations, a growing number of institutions in recent years have chosen to include real estate investment trusts (REITs) as part or all of their real estate allocation. In addition to the investment attributes of real estate, these investors are attracted to the liquidity, transparency, accountability and management experience of publicly traded real estate companies or REITs.[1]

According to the 2004 Plan Sponsor Survey published by *Pensions & Investments* magazine, the Nevada Public Employees Retirement System reported a real estate allocation of 8.7 percent as of September 30, 2004, with REITs accounting for one-third of that allocation. Likewise, the Maryland State Retirement & Pension System reported a 6.6 percent allocation to real estate, with REITs accounting for nearly 60 percent of that allocation. And in looking at public defined benefit plans in the states of all members of the Subcommittee, we found that they have a combined real estate allocation of about 5 percent, and that 14 percent of the real estate allocation is invested in REITs.

So the concept of including real estate in a retirement plan is neither new nor untested. The professionals charged with the fiduciary duty for managing these plans recognize the importance of maintaining a distinct and continuing allocation to real estate in the investment profiles of their long-term defined benefit plans.

Fortunately, Congress also wisely recognized the importance of commercial real estate investment for small investors, as well as professional investors investing in behalf of small savers (including those saving for retirement), when it created REITs 45 years ago. As the Committee Report in 1960 noted, Congress created REITs so "small investors can secure advantages normally available only to those with large resources."

Today, the time has come to extend that vision to the millions of small investors building their financial security through the Thrift Savings Plan.

Real Estate Investment Trusts

REITs are publicly traded companies that own and, in most cases, manage portfolios of investment-grade, income-producing commercial real estate, including office buildings, warehouse and distribution facilities, retail centers, apartment communities and hotels.[2] REITs are not mutual funds, closed-end funds or partnerships.

REITs operate like other publicly traded companies, including familiar names like Microsoft, Verizon or Citigroup. However, unlike Microsoft (which designs and provides software), Verizon (which builds and provides telecommunications services) or Citigroup (which manages and provides financial services), REITs create and provide real estate services. REITs provide a simple and inexpensive way for all investors to invest in commercial real estate without buying property directly.

Today, there are nearly 200 publicly traded REITs that operate around the country. They own a combined portfolio of about $400 billion of commercial properties or

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[1] In 2004, Institutional Shareholder Services rated the REIT industry first in its corporate governance rankings.
[2] Some REITs also provide financing for commercial real estate.

approximately 15-20 percent of all institutionally-owned commercial properties nationwide. Like the stocks of all other publicly traded companies, REIT stocks are bought and sold daily both by institutions and by individuals on the New York Stock Exchange, the American Stock Exchange and the NASDAQ. There are no restrictions and no penalties on such purchases and sales other than the normal brokerage fees paid to trade all securities on public markets. Trading volume of the companies comprising the NAREIT Equity REIT Index has grown appreciably in recent years. Daily dollar trading volume, a common measure of liquidity, now regularly exceeds $1 billion, with significantly higher volumes available when the market demands it.

Our analysis of the REIT marketplace shows that most REIT performance benchmarks have liquidity characteristics similar to those of the small-capitalization equity market in which the TSP's current Dow Jones Wilshire 4500 Completion Index (S fund) invests. The Board has established procedures that have cost-effectively managed cash flows in this market since the S fund was added to the plan in 2001. Assuming that one or more liquid REIT indexes are selected benchmarks for a REIT index fund, we believe that these same procedures would work just as effectively.

The common stocks of equity REITs − those REITs that specifically own and operate commercial properties − may be viewed as hybrid investments, combining the growth characteristics of other stocks and the income characteristics of bonds. The income component of the total return to REIT stocks comes from the steady rents received from the REIT's customers (its tenants). In practice today, about 95% of the assets of equity REITs is commercial real estate. REITs derive a significant part of their value and most of their reliable income from rents. Because REITs are required by federal law to distribute at least 90 percent of their taxable income each year to their shareholders, their dividend yields are significantly higher than those of other equities – currently about three times higher than the average dividend yield of the 500 companies in the Standard & Poor's 500 Stock Index – and generally produce a steady stream of growing income. On average over time, shareholder dividends have accounted for about two-thirds of the total return to REIT stocks.

The growth component of the total return to REIT stocks is tied to the long-term economic growth of the nation. Commercial real estate houses our economy. It provides the space in which we conduct our business activities, including the places where we work (office buildings), where we shop (retail centers), where we process and coordinate the transportation of goods (warehouse and distribution facilities), where some of us live (apartments) and where we stay when we travel (hotels). As the economy, grows the demand for space increases and provides new opportunities for REITs to expand their real estate services.

This unique combination of income and growth has resulted in strong and consistent total returns to REITs over all investment horizons when compared with other widely recognized measures of market performance. As shown in Exhibit 1, the compound annual total return to equity REITs has outpaced the returns to most other major market indexes over most investment horizons for the past 33 years, the period for which comparable data are available. For example, over the 33-year period 1972-2004 equity REIT stocks produced a 13.4 percent annual total return compared with an 11.4 percent annual total return for the S&P 500.

Moreover, these higher investment returns were produced with lower levels of volatility, a common measure of risk, than that observed with most other measures of stock market performance. As shown in Exhibit 2, the annualized volatility of monthly total returns to equity REITs has been markedly lower than the volatility of returns to most other major market indexes over most investment horizons. For example, total returns to equity REIT stocks recorded annualized volatility of 13.7 percent over the 33-year period 1972-2004 compared with 15.5 percent for the S&P 500.

Finally, the unique combination of income and growth in the total return to REIT stocks implies that REIT returns are influenced more by their stock-like component during some periods but more by their bond-like component during other periods. Thus, REIT returns follow their own path, never completely like bonds and never totally like other stocks. This critical attribute of REIT returns results in total returns to REIT stocks that are unlike (or uncorrelated with) the returns to other stocks and bonds and is the key ingredient providing investors with important diversification benefits.

As shown in Exhibit 3, the correlation coefficients of REIT returns with the returns to other major equity market indexes have declined steadily over the past 15 years and remain relatively low. That means that the returns to equity REIT stocks do not track too closely the returns to other stocks, thereby providing the benefit of diversification. Likewise, Exhibit 4 shows that the correlation coefficients of REIT returns with the returns to other major bond market indexes also have declined and remain near zero today, meaning that REIT stocks respond differently than bonds to economic and financial developments.

Diversification and the Thrift Savings Plan

Diversification is a time-honored strategy for managing investment risk. By investing in a portfolio of distinctly different assets with returns that do not move too closely together, long-term total portfolio returns can be increased and risk can be reduced. As a result, an increasing number of financial experts recommend that retirement savings be spread among more than a few types of investments.

However, to effectively build a well-diversified retirement portfolio, plan participants require an adequate number of investment funds from which to choose. While there appears to be no consensus regarding the optimum number or type of investment funds, available survey data reveal that there are approximately 16 investment funds on average available in defined contribution plans nationwide.[3] Considering that the TSP today

[3] See "47th Annual Survey of Profit Sharing and 401(k) plans: Reflecting 2003 Plan Year Experience," published by the Profit Sharing/401(k) Council of America.

offers its participants only 5 choices, it appears that federal civilian and military employees are among those most limited in their ability to assemble a truly diversified retirement portfolio.[4]

Over several decades, academic research has demonstrated that the returns available from commercial real estate investment are appreciably different than the returns from other investments, thereby offering significant diversification benefits. Likewise, more recent research has concluded that the relatively high returns, low volatility and low correlation of the investment returns from REITs makes REITs a powerful diversification tool for individual investors as well as large institutions.

Acknowledging the results of this research, IBM, sponsor of the nation's largest 401(k) plan with $23.4 billion of assets as of September 2004, added a REIT index fund as a distinct investment choice to its plan in 2004.[5] According to a story in *Pensions & Investments*, an IBM spokesperson reported that the new REIT index fund give its plan participants "the opportunity to invest in what we consider to be a separate asset class which increasingly seems to have a low correlation to other more traditional asset classes."[6]

In addition, Morningstar, Inc., a leading provider of independent investment research, includes REITs as a distinct investment in a model portfolio for retirees, with a recommended allocation of at least 5 percent.[7]

As those with fiduciary responsibilities for today's public and private defined contribution plans look to improve the performance and effectiveness of their plans, it is not surprising that the proportion of 401(k) plans nationwide offering a real estate fund to their plan participants is on the increase, rising from around five percent in the late 1990s to about 12 percent as of 2003. Today, four of the six largest 401(k) plans in the private sector now offer their participants a REIT option. And in light of these developments, it seems reasonable to ask why the employees of some of the largest private sector plans have the advantage of choosing a distinct REIT option, while TSP participants do not?

It is important to note that NAREIT does not suggest that REITs should be the only additional distinct investment option considered for inclusion in the Federal Thrift Savings Plan. As stated at the beginning, the Congress, the Board and the TSP staff together have crafted, refined and managed an admirable base supplemental retirement plan for federal employees. What we are suggesting, however, is that significant opportunity for improved diversification is still available, improvement that will benefit

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[4] In a November 2003 report available at www.psca.org, data from the "46th Annual Survey of Profit Sharing and 401(k) plans: Reflecting 2002 Plan Year Experience" were reported to show that plans offering lifestyle funds "tend to have more investment options than other plans, offering an average of 20 investment options for participant contributions, compared to only 14 options in plans that have no lifestyle funds."

[5] Barclays Global Investors, San Francisco, is manager of the IBM real estate investment trust index fund.

[6] *Pensions & Investments*, May 31, 2004.

[7] http://news.morningstar.com/doc/document/print/1,3651,103823,00.html

all TSP participants, including those that choose new life cycle funds as well as those that do not.

It is especially important to underline just how critical are the decisions of investors to allocate and diversify their investments across an appropriate and effective set of distinct assets, as well as the decisions of plan sponsors to make appropriate and effective investment choices available to their plan participants. In pioneering investment research that first appeared in 1986 and was subsequently updated in 1991, it was revealed that, on average, over 91 percent of the variation of portfolio returns can be explained by differences in the allocation of investments across different assets.[8] These widely accepted results underscore how critical it is to the success of any investment program, including the Thrift Savings Plan, that an adequate number of investment choices are made available to plan participants and that those choices provide access to an appropriate spectrum of investment classes.

The research invites all of us to question whether the 5 investment funds currently available to TSP participants provide sufficient choice that maximizes the portfolio diversification opportunities potentially available to TSP participants. Or, do significant diversification benefits remain available by adding 1 or more new investment funds to the current menu of G, F, C, S and I funds?

A review of the historical performance record helps shed some light on the answer to this question. Exhibit 5 compares the performance of the G, F, C, S and I funds along with the performance of a REIT index fund for the period 1988 – 2004, the period for which the Thrift Savings Plan has been in full operation.[9] The 17-year record shows that REIT stocks provided total returns comparable to the returns available from the C Fund and the S Fund but with somewhat lower volatility.

Exhibit 6 summarizes the correlation of REIT fund returns with returns to the other 5 TSP funds. Echoing the results displayed earlier in Exhibits 3 and 4, it is clear that REIT fund returns have exhibited relatively low correlation with returns to the other 3 equity funds (the C, S and I funds) and even less correlation with the 2 available bond funds (the G and F funds).

Finally, Exhibit 7 clearly illustrates how performance and diversification has been driven over the period 1988 – 2004 by the distinguishing investment performance attributes of the G, F, C, S, I and REIT funds. It is evident that returns to the C fund and the S fund move closely together over time. It is equally apparent that returns to the G fund and the F fund move rather closely together, although the higher volatility of returns to the F fund induces a relatively low correlation of the returns to these two funds. However, the

[8] G.P. Brinson, L.R. Hood and G.L. Beebower, "Determinants of Portfolio Performance II: An Update," *Financial Analysts Journal,* May/June 1991.
[9] The S and I funds first became available in May 2001. Fund returns prior to that time are based on their underlying index returns net of expenses. The REIT Fund data are based on NAREIT's equity REIT index, net of expenses that were conservatively assumed at twice the level of the other TSP stock index funds.

sharpest impression is how distinctly different are returns to the I fund and the REIT fund. Returns to both funds bear little resemblance to each other or to the returns of any of the other investment funds.

The historical record paints an attractive picture for the inclusion of a REIT index fund in the Thrift Savings Plan. However, a complete answer to the question of whether additional diversification benefits are available through a REIT fund to TSP participants requires a more rigorous analysis. In a study requested by NAREIT, Ibbotson Associates – a leading authority on asset allocation – assessed carefully the additional diversification benefits that could be made available to TSP participants by adding a distinct REIT index fund to the current TSP investment menu of 5 stock and bond investment funds. Ibbotson determined that a REIT index fund increases returns and reduces risk when added to efficient portfolios of G, F, C, S and I funds. Ibbotson also concluded that efficient portfolios include an appreciable allocation to a REIT index fund across most levels of investor risk tolerance.

Ibbotson's analysis is based on mean-variance optimization first pioneered by Harry M. Markowitz. In 1990, Markowitz shared the Nobel Prize in Economics for his contributions to modern portfolio theory. In particular, Markowitz showed how to measure the risk of various investments and how to combine those investments in a diversified portfolio to earn the maximum return available for a given level of risk. As we have seen, each type of investment produces returns having a unique set of performance attributes: the rate of return, the volatility of returns and the correlation of returns with other investments. When the rate of return is sufficiently high, the volatility of returns sufficiently low and/or the pattern of returns sufficiently different, the investment can earn a place in an optimal portfolio.

Using mean-variance optimization, Ibbotson determined optimal portfolio allocations using the current investment funds available to TSP participants. Once these allocations were determined, Ibbotson then established the diversification benefits available from adding a REIT index fund as another investment choice for TSP participants. Exhibit 8 shows optimal allocations to the G, F, C, S and I funds over the period 1988 – 2004 that would have achieved the maximum annual portfolio return for each level of portfolio risk as measured by the standard deviation of annual returns. At low levels of acceptable risk, allocations to the G fund are dominant owing primarily to the low volatility (or risk) of G fund returns. As the level of acceptable risk becomes more moderate, allocations to the G fund are reduced and allocations to the F fund and the C fund are increased to benefit from the higher returns that become available at more moderate levels of acceptable risk. A uniformly small allocation is made to the S fund across most levels of acceptable risk. At the highest levels of acceptable risk, allocations to the S fund become dominant because of the higher returns that become available when higher levels of risk are accepted.

It is important to note that the investment allocations in Exhibit 8 should not be interpreted as recommended allocations but only as illustrative allocations pertaining to different levels of acceptable risk. In particular, these allocations should be viewed only as allocations that modern portfolio theory has identified as the allocations that would have been optimal had the performance record of the G, F, C, S and I funds for the period 1988 – 2004 been known in advance. Moreover, when only 5 investment choices are available, it is not unlikely that outsized allocations may be identified for one or more of those funds. However, optimal portfolio allocations may still be viewed as providing broad guidance when determining appropriate relative allocations among available investments at different levels of risk tolerance.

Exhibit 9 shows optimal allocations to the G, F, C, S, I and REIT funds. At low levels of acceptable risk, allocations to the G fund remain dominant. As the level of acceptable risk again becomes more moderate, allocations to the G fund are reduced while a combination of allocations to the F fund, C fund and REIT fund rapidly increase, taking advantage of the higher returns available from these three funds at more moderate levels of acceptable risk. At higher levels of acceptable risk, allocations to the F and C funds give way to higher allocations to the R fund because the average return to the R fund is higher than the average returns to the F and C funds, and the volatility of returns (or risk) to the R fund is lower than the volatility of returns to the F and C funds (see Exhibit 5). Across all levels of acceptable risk, there are no meaningful allocations to either the S fund or the I fund.

Again, it is important to note that the investment allocations in Exhibit 9 should not be interpreted as recommended allocations but only as the allocations that modern portfolio theory has identified as the allocations that would have been optimal had the performance record of the G, F, C, S, I and REIT funds for the period 1988 – 2004 been known in advance.

Combining the results from Exhibits 8 and 9, Ibbotson then determined the degree to which investment performance would have been improved had a REIT fund been available to optimal TSP portfolios. In particular, Exhibit 10 shows the increase in annual returns that would have been earned by adding a REIT fund to optimal portfolios at different levels of acceptable risk for the period 1988 – 2004. At low levels of acceptable risk, annual returns would have increased in the range of 40-60 basis points. At more moderate levels of acceptable risk, returns would have increased in the range of 80-140 basis points, before narrowing again at even higher levels of acceptable risk.

These results are further translated into participant benefits in Exhibit 11, which compares annual returns and the growth of $10,000 invested in portfolios with and without a REIT allocation at different levels of acceptable portfolio risk. For example, Ibbotson's analysis demonstrates that $10,000 invested in a moderate risk portfolio of TSP funds in 1988 − not including a REIT index fund − would have grown to $54,958 by the end of 2004. However, that same $10,000 investment in a moderate risk portfolio that included a REIT option would have increased in value to $64,679, an investment improvement of 17.7 percent over the portfolio without a REIT allocation.

While useful and instructive, any inferences drawn from the investment results shown in Exhibits 8 – 11 should be prudently tempered. After all, we live in a dynamic economy with dynamic markets that confront all investors from time to time with new opportunities as well as new risks. Indeed, our future most assuredly will be different from our past.

Nevertheless, the performance record and the optimization results suggest a number of instructive conclusions. First, a REIT index fund provides unambiguous portfolio diversification benefits typical of commercial real estate investments. Second, a REIT index fund increases returns and reduces risk when added to an optimum portfolio of G, F, C, S and I funds. And third, optimum portfolios include an appreciable allocation to a REIT index fund across most level of acceptable portfolio.

Thus, even small allocations to a REIT index fund would provide appreciable diversification benefits to TSP participants. For example, Exhibit 12 illustrates the benefits derived in portfolios that include a 10 percent allocation to a REIT index fund. Even in these cases, the investment returns on each $10,000 invested are increased between 6 and 7 percent.

Today, the diversification benefits of REITs, as demonstrated by Ibbotson's analysis, are available to all investors, including TSP participants, but only if the specific opportunity is made available to them. As noted earlier, the employees, retirees and other beneficiaries at such diverse organizations as General Motors, Harvard University, California Public Employees Retirement System and IBM already have access to these diversification benefits. Why should the men and women who work daily for the benefit of the nation as a whole not have access to the same retirement savings opportunities? Why should federal workers not have specific access in their retirement savings program to the opportunities Congress intended for small investors 45 years ago?

Is Adding a REIT Index Fund to the TSP Feasible?

Apart from the investment merits and diversification benefits of adding a REIT index fund to the Thrift Savings Plan, the provisions of H.R. 1578 also raise a number of important questions tied to the operational and economic feasibility of adding a REIT index fund to the current TSP menu of 5 investment funds. In general, these questions have focused on:

- What would be the administrative and management costs?
- To what extent would there be duplication of existing investments?
- What is an appropriate performance benchmark?
- What if past performance is not indicative of future results?

Administrative and Management Costs

The Thrift Savings Plan now provides participants with a well-focused set of core investment choices utilizing low-cost index funds that minimize expenses and maximize returns to the participants. The Board and TSP staff have done a remarkable job of managing these costs and maintaining them at remarkably low levels. According to information published by the TSP, 2004 expense ratios, which include administrative costs plus investment management fees, were 6 basis points for the G, C, S and I funds and 5 basis points for the F fund.

Although the Board knows best whether the TSP's administrative expenses for administering a REIT index fund would be more or less than its costs of administering the G, F, C, S and I funds, we have no reason to believe that the costs for administering a REIT index fund would be materially different.

An accurate determination of the level of investment management fees required to offer a REIT index fund likely are most suitably determined in a competitive bidding process. Still, NAREIT put this question to the portfolio managers and senior investment professionals at institutional investment firms that manage some of the largest actively managed, as well as passively indexed, REIT funds. We specifically asked them for their indications of the likely investment management fees of providing a REIT index fund to TSP participants. Generally speaking, these investment professionals recognize the appreciable economies of scale available when managing large investment funds like the TSP, and they indicated that the costs of managing a REIT index fund should not be prohibitive when compared with the costs of managing the TSP's other 5 funds.

However, apart from the important goal of maintaining low costs, the critical question for TSP participants, as well as for other investors, should not focus narrowly on the costs associated with any particular investment opportunity, but rather more broadly on the diversification and investment performance benefits available from that investment opportunity <u>relative</u> to its costs. The Ibbotson Associates analysis demonstrates that a REIT index fund would have increased performance and reduced risk if it had been available to TSP participants for the period 1988 – 2004. Moreover, the analysis conservatively assumed annual expense ratios for a REIT index fund at <u>twice</u> the level of the expense ratios of the C fund over the entire period. Even so, the Ibbotson analysis demonstrated that inclusion of a REIT index fund in optimal portfolios would have increased annual returns in the range of 26-145 basis points across all levels of risk tolerance.

Clearly, the demonstrated historical performance of REITs, net of expenses, presents a compelling case when considering additional investment choices for TSP participants.

Duplication of Existing Investments

Both the C fund and the S fund track market indexes that include some REIT stocks. Thus, the question may be asked whether TSP participants already have available to them the option of investing in REITs through one or both of these funds. In that case, a distinct REIT index fund might be unnecessary because it only would duplicate investment in REITs already available through the C and S funds.

It is important to note that the Ibbotson Associates analysis fully accounts for the exposure to REIT stocks already available to TSP participants through the C fund and the S fund. Any duplication is of no consequence for the historical analyses developed by Ibbotson, as all duplication is reflected in the performance record of these two funds.

As noted earlier, the Ibbotson Associates analysis, the Morningstar® retirement guide and major institutional portfolios, including the widely recognized Harvard Endowment, all include a targeted allocation of at least 5-10 percent to income producing real estate investment, including REITs, in order to achieve a meaningful and appropriate amount of portfolio diversification. In all these applications of modern portfolio theory, the critical issue is not whether the real estate allocation nominally is referred to as an "industry" allocation or an "asset class" allocation. Rather, the critical issue is whether a real estate allocation adds appreciable diversification benefits to the overall portfolio and what allocation is required in order to achieve those benefits.

The TSP's C fund tracks the Standard & Poor's 500 Stock Index, while the S fund tracks the Dow Jones Wilshire 4500 Completion Index. As shown in Exhibit 13, the S&P 500 Stock Index included 7 REIT stocks as of March 31, 2005. These 7 stocks combined had a market weight in the S&P 500 of 0.53 percent. The Dow Jones Wilshire 4500 Completion Index included 186 REITs with a combined market weight of 6.31 percent. Thus, some exposure to REIT stocks is embedded in the performance of the C and S funds. However, the exposure is very small and inadequate to obtain meaningful portfolio diversification.

In particular, a TSP participant either cannot obtain a meaningful REIT allocation by investing only in the C or S funds or can only achieve meaningful exposure to REITs by significantly concentrating his or her investments in one fund, the S fund, thereby violating a cardinal tenet of portfolio diversification. In the absence of a distinct REIT index fund, to obtain a 5 percent exposure to REITs, a TSP participant would need to invest approximately 80 percent of his or her total TSP account balance in the S fund. And a 10 percent allocation to REITs could not be achieved using any combination of current TSP investment funds.

Based on balances in the C fund and S fund as of December 31, 2004 and the market value of REIT stocks in these two funds as shown in Exhibit 13, we estimate that TSP participants on the whole have an implied allocation to REITs of approximately $1.0 billion, or less than 0.7 percent. As demonstrated by Ibbotson's analysis, such a limited allocation simply does not provide plan participants with a meaningful or beneficial exposure to commercial real estate, which can only be made available through a separate and distinct REIT index fund.

Choosing an Appropriate Performance Benchmark

In its analysis of the role and diversification benefits of a REIT index fund in TSP participant portfolios, Ibbotson Associates used the NAREIT Equity REIT Index, net of expenses, as a proxy for the investment returns that would have been available from such a fund. Calculated since 1972, the NAREIT Equity REIT Index is the longest available market benchmark for the performance of equity REITs. The index includes the common stocks of all publicly traded REITs, regardless of float and trading volume, including companies with large, mid-sized and small equity market capitalizations.

It is important to note that neither NAREIT nor Ibbotson Associates is recommending that the TSP introduce a REIT index fund using the NAREIT Equity REIT Index as its performance benchmark. Clearly, the choice of a performance benchmark for a REIT index fund would seem to be most appropriately determined by a qualified investment manager. Because the NAREIT Equity REIT Index is not an investable index today, the question may arise as to whether the index is a useful measure of the investment performance of investable REIT stocks as well as an appropriate measure for use in investment analysis.

To test the NAREIT Equity REIT Index as an appropriate performance benchmark for measuring "investable" REIT returns, Ibbotson Associates created an alternative benchmark that depends only on securities bought and sold on a daily basis by professional portfolio managers. The alternative benchmark consists of an equal-weighted portfolio of all available real estate mutual funds using data available from the Thomson Financial fund database for the period 1988 – 2004. Thus, the returns from a REIT index fund based on this alternative benchmark − the Real Estate Fund Benchmark − represent all REITs and real estate stocks actively bought and sold, with weightings averaged across those selected by all fund managers and expenses average across all investable funds.

According to the Ibbotson analysis, the compound annual return and standard deviation of annual returns of a REIT index fund based on the alternative Real Estate Fund Benchmark are nearly identical to those of a REIT index fund using the NAREIT Equity REIT Index. Thus, using the equal-weighted Real Estate Fund Benchmark to measure REIT returns results in optimal allocations to a REIT index fund that are very similar to those using the NAREIT Equity REIT Index. These results suggest that a REIT index fund, using returns measured by the NAREIT Equity REIT Index net of expenses, is a reasonable and appropriate proxy for average investable real estate fund returns actually available to investors over the period 1988 – 2004.[10]

[10] A variety of investable indexes should be considered as an appropriate performance benchmark for a REIT index fund. However, certain investable indexes, including the Dow Jones Wilshire Real Estate Securities Index, may not be appropriate indexes because they include a number of companies that are not equity REITs and exclude many companies that are REITs. Investability is a required but not necessarily a sufficient qualification for an appropriate REIT index fund benchmark.

Past Performance and Future Results

Underlying all investment research and analysis is one fundamental source of tension. The wisdom of today's investment decisions will be revealed by the performance of our chosen investments in the future, even though all of the information on which we base our decisions reflects the performance of those investments in the past. This underlying tension should rightly temper whatever inferences we draw from analyses based on historical information.

Ibbotson Associates and other research analysts address this tension with regularity. They recognize more than most that past performance is no guarantee of future results. In fact, their franchise and their reputation depend on an adequate understanding and recognition of this fundamental tension embedded in all investment research.

Ibbotson confronts this tension in a sensitivity analysis included in their most recent review of the performance and diversification benefits potentially available to TSP participants from the addition of a REIT index fund to the five funds currently available in the TSP. Because REIT returns combine attributes of the returns to both bonds and other stocks, Ibbotson's optimization results showed that increasing allocations to a REIT index fund reduced allocations to both other stock and bond funds for the period 1988 – 2004. But Ibbotson acknowledges that the performance of any asset class may be somewhat different in the future than it has been in the past, thereby changing the relative performance of different investments and possibly the optimal allocations to those investments.

Therefore, Ibbotson conducted a sensitivity analysis that considers the likely consequences to optimal portfolio allocations resulting from changes in the relative performance of a REIT index fund. However, rather than making arbitrary adjustments to the return, volatility and correlation of the REIT fund, Ibbotson chose to make such adjustments relative to the investment attributes of the C fund. Because REIT allocations in optimal portfolios in the Ibbotson analysis came largely at the expense of C fund allocations, the purpose of this approach was to determine what changes would be required in order for larger C fund allocations to reemerge.

The sensitivity analysis looks at the effects of four different types of changes to the relative investment performance of a REIT index fund:

- reducing REIT fund returns relative to the C fund, leaving volatility and correlations at historic levels;
- increasing REIT fund volatility relative to the C Fund, leaving returns and correlations at historic levels;
- increasing the correlation between the REIT fund and the C fund, leaving returns and volatility at historic levels;

- reducing REIT fund returns and volatility, leaving correlations at historic levels (*i.e.,* reducing REIT fund returns while maintaining a constant risk/reward tradeoff).

Results of the sensitivity analysis lead to the following conclusions:

- Reducing REIT fund returns results in larger allocations to the C fund for optimal portfolios with moderate to higher levels of risk, with some allocation to a REIT fund remaining appropriate until the S fund becomes dominant at the highest levels of acceptable risk.

- Increasing REIT fund volatility results in only slightly lower allocations to the REIT fund across most levels of acceptable risk.

- Increasing the correlation between a REIT index fund and C fund results in the S fund replacing the C fund as the only other equity investment in optimal portfolios, and the REIT fund remaining the dominant investment across most levels of risk tolerance.

- Maintaining a stable risk/reward tradeoff while reducing REIT fund returns and volatility is qualitatively similar to reducing REIT fund returns alone.

On balance, Ibbotson's sensitivity analysis demonstrates that the historical investment attributes of REITs make a REIT index fund an appropriate addition to a diversified portfolio of TSP equity and bond funds for a very wide range of investor risk tolerance. Moreover, the results also demonstrate that a REIT index fund remains firmly established in portfolios of TSP equity and bond funds even for a substantial range of unfavorable adjustments to the historical return, volatility and correlation of a REIT index fund.

Conclusion

In conclusion, the impressive long-term performance, reliable dividend income and proven diversification benefits of REITs demonstrate that any investor can use REIT stocks to build greater and more dependable long-term financial security. There is little doubt that the nation's 3.4 million TSP participants could also bolster their financial security by having the opportunity to include the dividends and diversification benefits of real estate stocks in a well-constructed retirement savings portfolio.

Exhibit 1

Historical Returns of Major Market Indexes

(Periods ended 2004:12)

Compound Annual Total Returns

(In percent)

Period Ended 31-Dec-04	S&P 500	Dow Jones	NASDAQ Composite	Russell 2000	MSCI EAFE	Lehman Brothers Bond	Equity REITs
1-Year	10.9	3.1	8.6	18.3	20.2	4.3	31.6
3-Year	3.6	2.5	3.7	11.5	11.9	6.2	23.3
5-Year	-2.3	-1.3	-11.8	6.6	-1.1	7.7	21.9
10-Year	12.1	10.9	11.2	11.5	5.6	7.7	14.8
15-Year	10.9	9.5	11.0	11.1	4.2	7.7	13.3
20-Year	13.2	11.5	11.5	11.5	11.4	8.8	12.7
25-Year	13.5	10.8	11.3	12.4	11.0	9.6	14.2
30-Year	13.7	10.0	12.7	NA	12.1	NA	16.2
33-Year	11.4	7.9	9.3	NA	10.6	NA	13.4
Risk[1]	17.7	16.5	27.6	19.1	22.4	7.5	17.0

[1] Standard deviation of annual returns for 1972-2004.

Source: NAREIT.

Exhibit 2

Volatility of Major Market Indexes

(Periods ended December 2004)

Annualized Volatility of Monthly Total Returns

(In percent)

Periods Ended 31-Dec-2004	S&P 500	Dow Jones	NASDAQ Composite	Russell 2000	MSCI EAFE	Lehman Brothers Bond	Equity REITs
1-Year	7.3	7.3	14.5	14.6	9.5	4.0	20.5
3-Year	15.1	15.1	22.2	19.2	15.7	4.3	14.6
5-Year	16.3	16.3	32.9	21.9	15.9	4.0	13.8
10-Year	15.6	15.9	28.9	19.9	15.1	3.8	13.0
15-Year	14.6	14.8	25.6	18.9	16.7	3.9	13.1
20-Year	15.5	15.7	24.2	19.3	17.4	4.5	12.5
25-Year	15.4	15.4	23.3	19.5	17.2	6.2	12.7
30-Year	15.2	15.5	22.4	NA	16.9	NA	13.1
33-Year	15.5	15.6	22.4	NA	17.0	NA	13.7

Source: Ibbotson Associates.

Exhibit 3

Correlation of Equity REIT Returns with Major Market Equity Returns

(Periods ended 1976:12 - 2004:12)

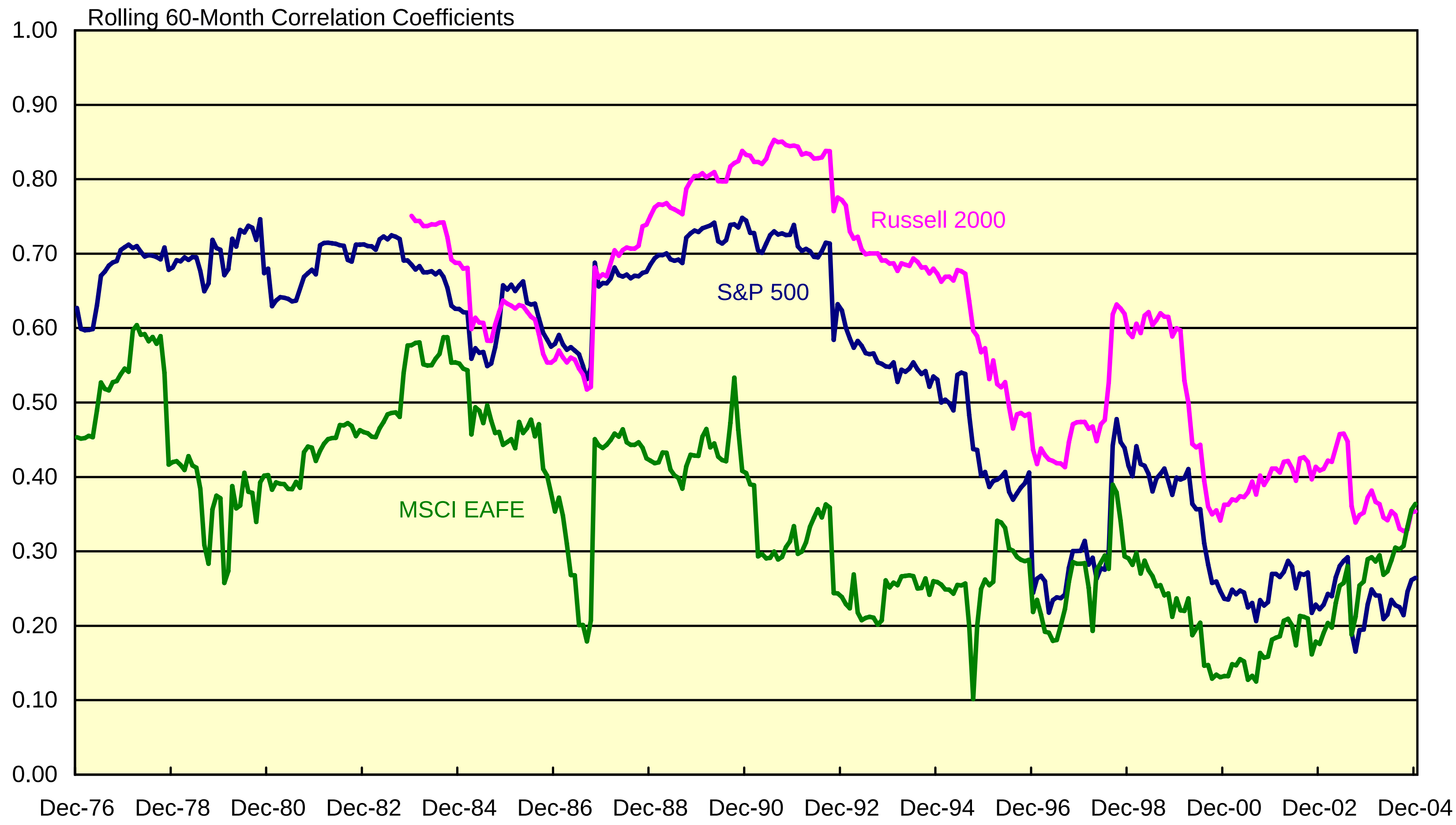


Exhibit 4

Correlation of Equity REIT Returns with Fixed Income Returns

(Periods ended 1976:12 - 2004:12)

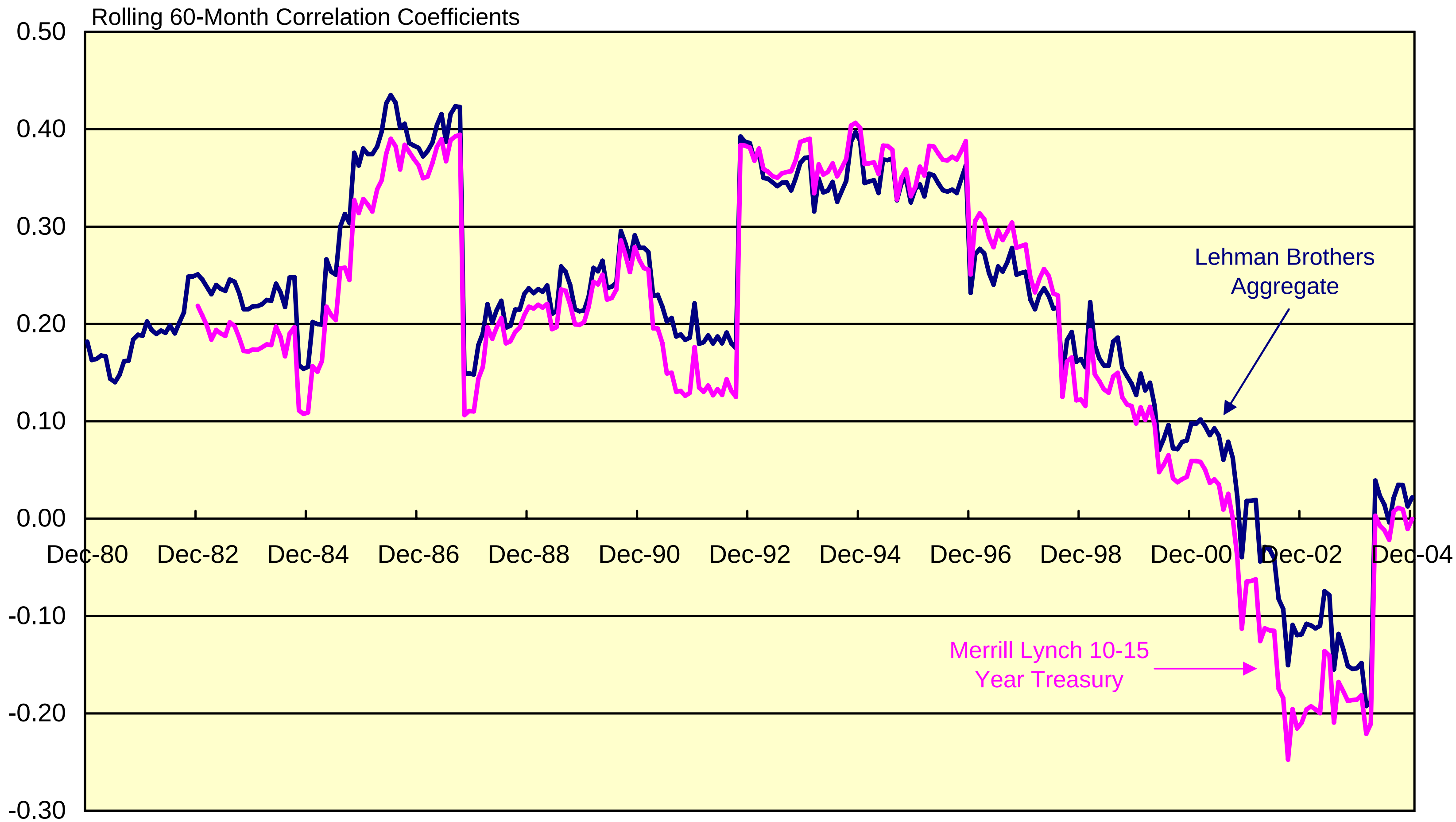


Exhibit 5

Thrift Savings Plan Investment Fund Performance

(Current five funds plus REIT fund: 1988 - 2004)

	Average Annual Total Return (In percent)	**Standard Deviation of Annual Total Returns** (In percent)
G Fund	6.6	1.5
I Fund[1]	7.4	19.3
F Fund	8.1	5.4
C Fund	13.7	17.8
S Fund[1]	13.8	19.9
REIT Fund[2]	14.0	16.6

[1] S and I Fund returns before 2001 based on underlying index returns net of expenses.

[2] REIT Fund returns based on NAREIT Equity REIT Index net of expenses.

Source: Federal Retirement Thrift Investment Board, Ibbotson Associates.

Exhibit 6

Thrift Savings Plan Investment Fund Performance

(1988 - 2004)

Correlation Coefficients of Annual Total Returns

	G Fund	F Fund	C Fund	S Fund[1]	I Fund[1]	REIT Fund[2]
G Fund	1.00	0.29	0.20	0.03	-0.18	-0.24
F Fund		1.00	0.21	0.09	-0.21	0.14
C Fund			1.00	0.88	0.64	0.21
S Fund[1]				1.00	0.74	0.42
I Fund[1]					1.00	0.23
REIT Fund[2]						1.00

[1] S and I Fund returns before May 2001 based on underlying index returns net of expenses.

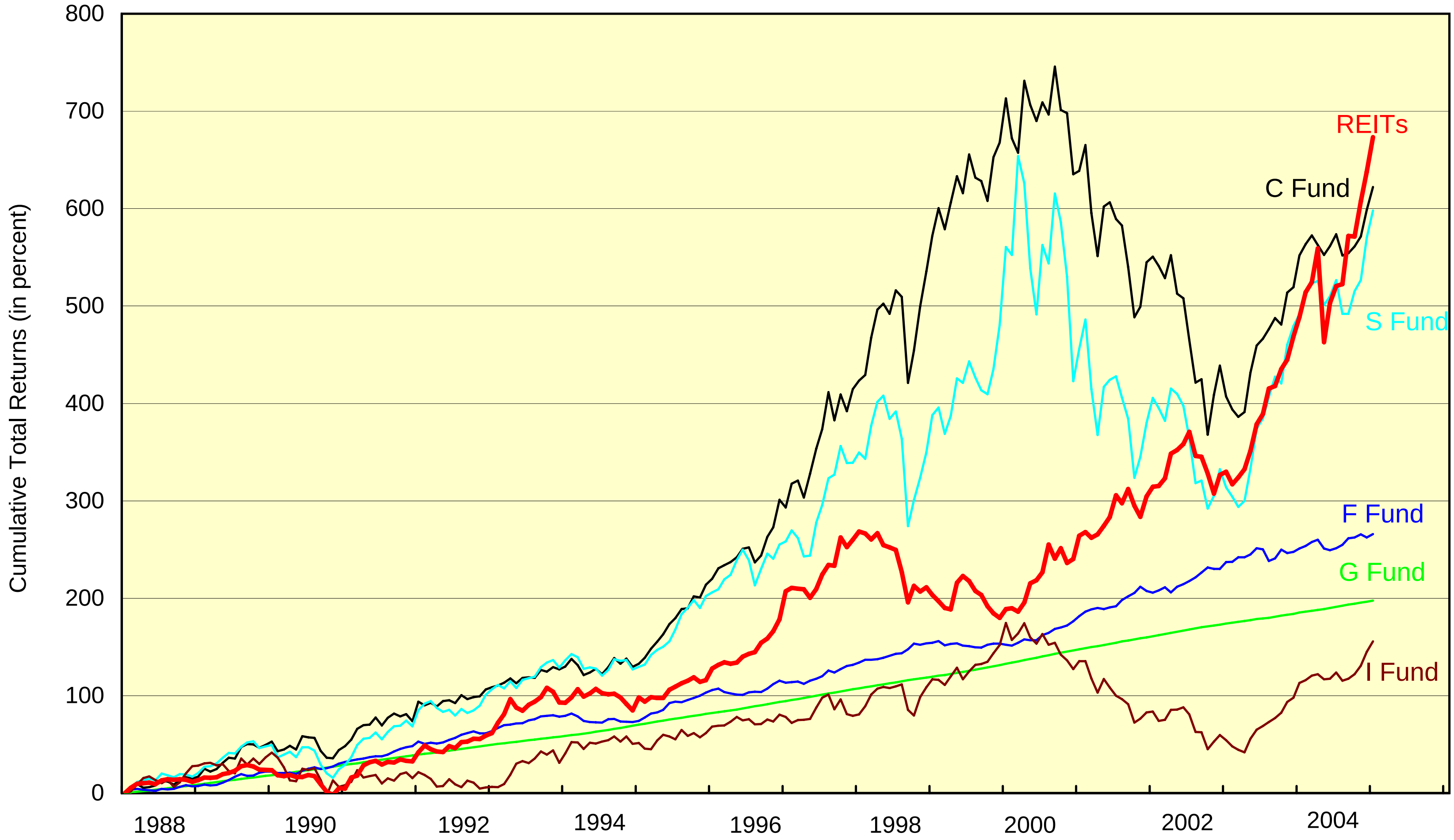
[2] REIT Fund returns based on NAREIT Equity REIT Index net of expenses.

Source: Federal Retirement Thrift Investment Board, Ibbotson Associates.

Exhibit 7

Thrift Savings Plan Cumulative Investment Fund Performance

Five current funds plus REITs: 1988 - 2004



FTSP Historical Data 2005.xls
Exhibit 7

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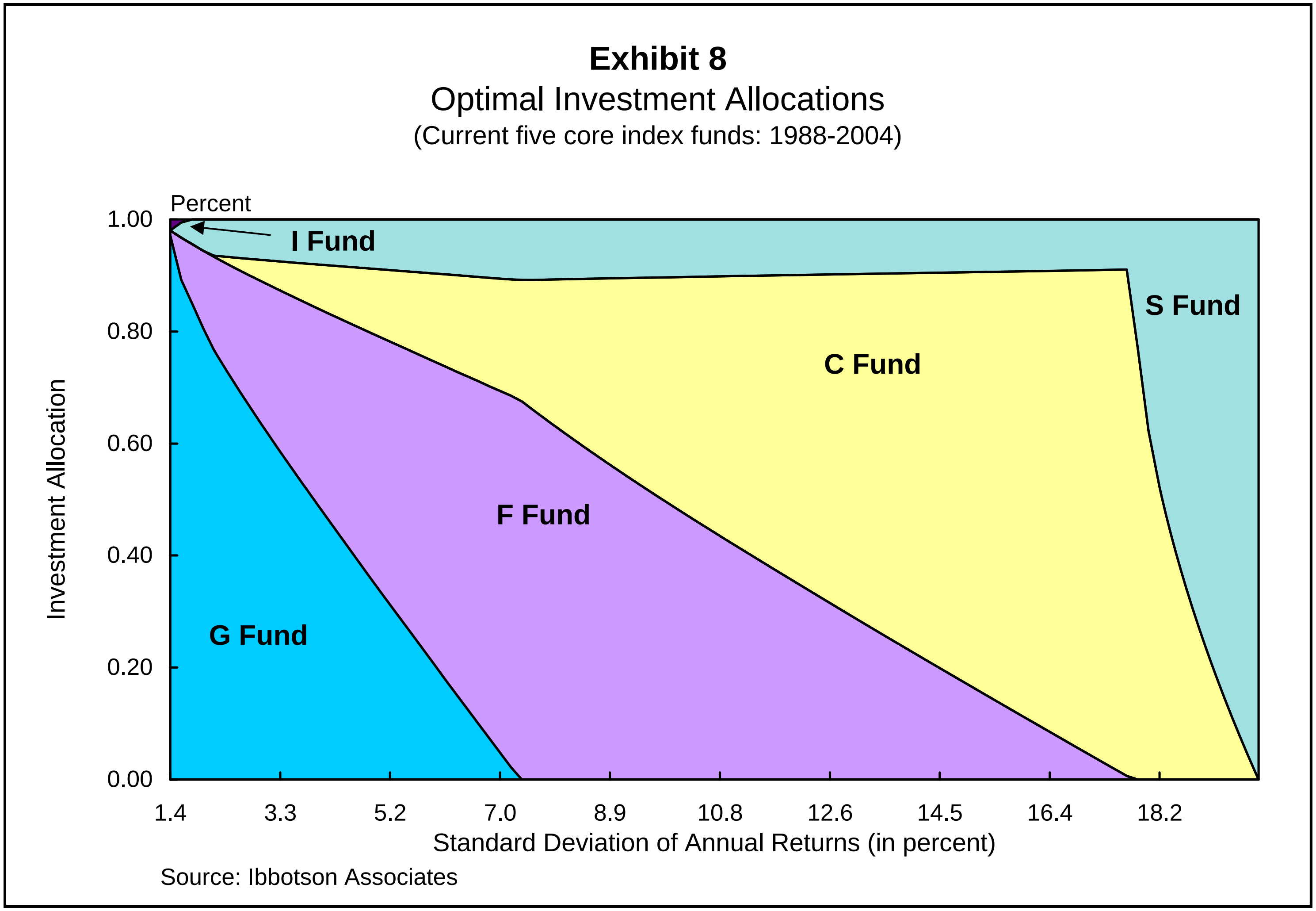
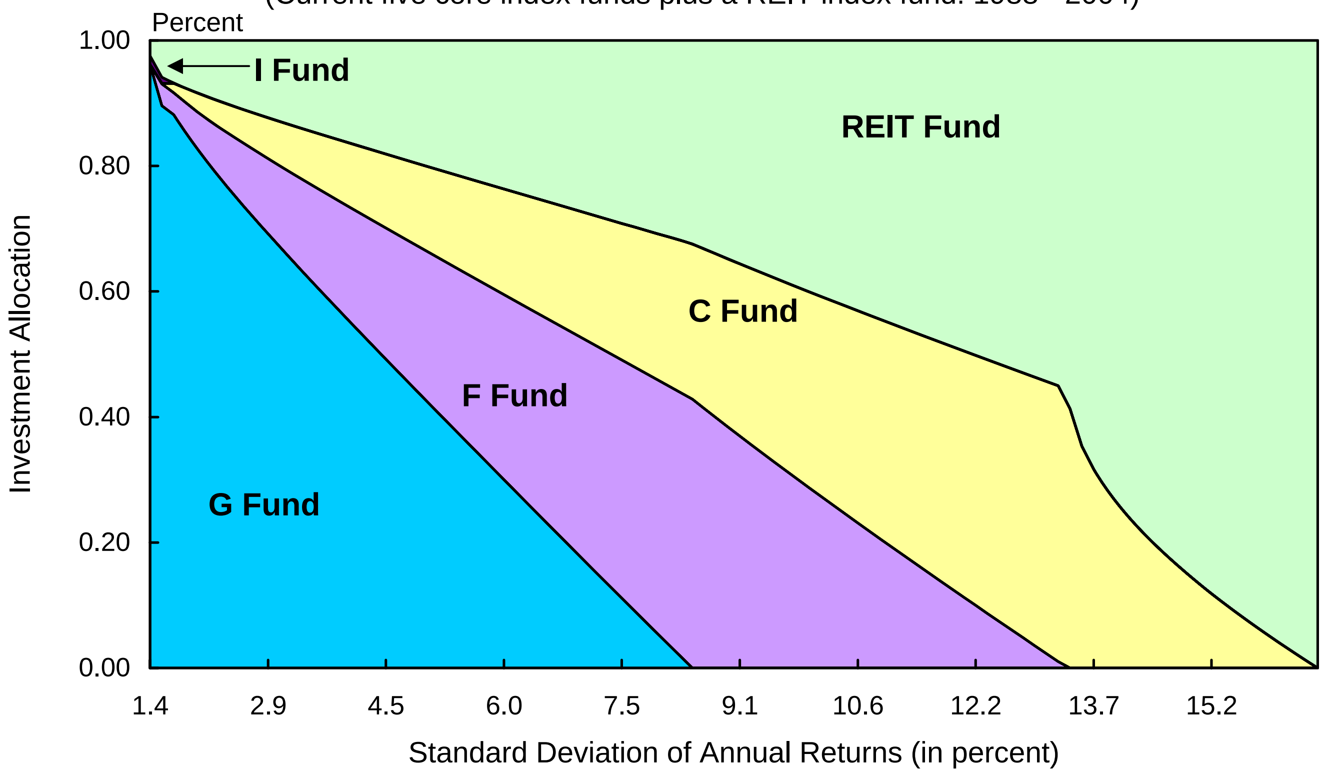


Exhibit 8
Optimal Investment Allocations
(Current five core index funds: 1988-2004)
Percent
1.00
0.80
0.60
0.40
0.20
0.00
Investment Allocation
I Fund
S Fund
C Fund
F Fund
G Fund
1.4
3.3
5.2
7.0
8.9
10.8
12.6
14.5
16.4
18.2
Standard Deviation of Annual Returns (in percent)
Source: Ibbotson Associates

Exhibit 9
Optimal Investment Allocations
(Current five core index funds plus a REIT index fund: 1988 - 2004)

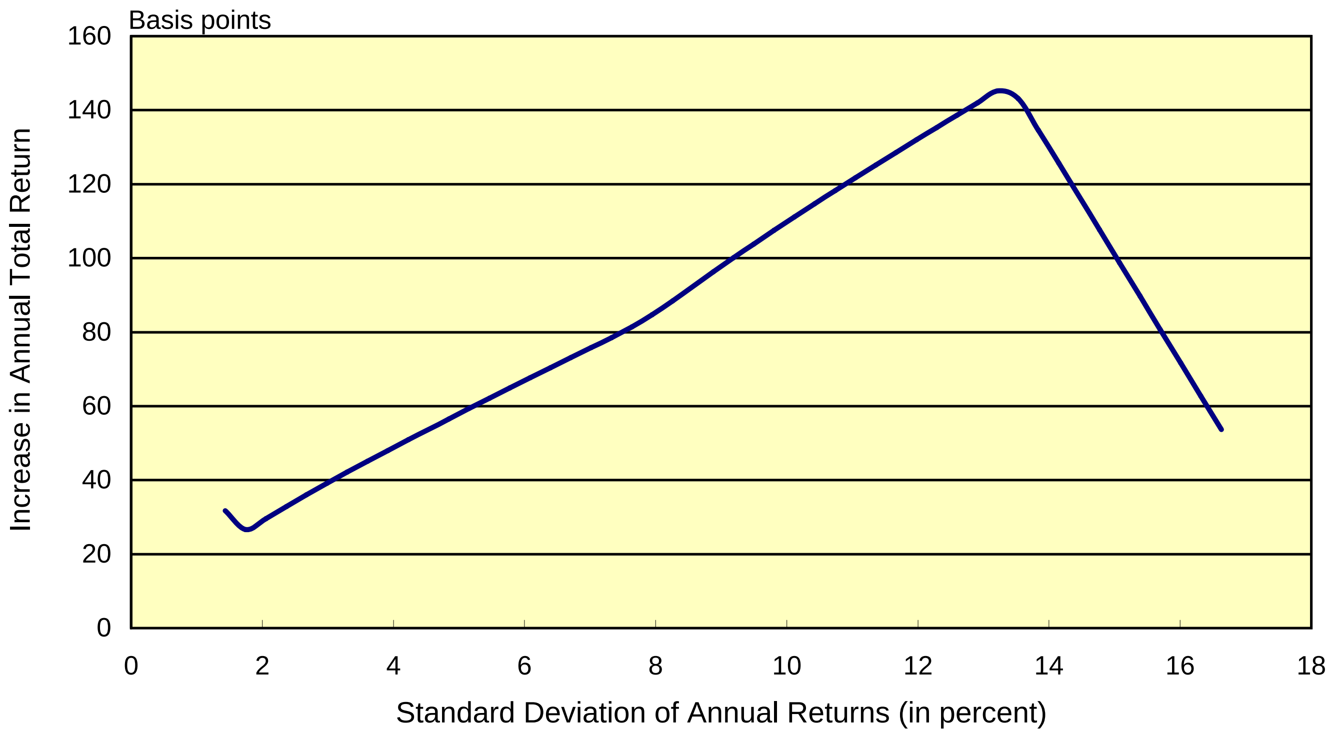


Source: Ibbotson Associates.

Exhibit 10

Annual Total Returns Increase when REIT Index Fund Added

(Current five core index funds plus a REIT index fund: 1988 - 2004)



Source: Ibbotson Associates.

Exhibit 11

Thrift Savings Plan Optimal Portfolio Performance

(1988-2004)

	Portfolio								
	1	2	3	4	5	6	7	8	9
					(Moderate risk portfolios)				
Expected Annual Returns (in percent)									
Without REITs	7.3	8.3	9.3	10.2	10.5	11.0	11.7	12.5	13.1
With REITs	7.6	8.8	10.0	11.1	11.6	12.3	13.2	13.9	13.9
Growth of $10,000 (in dollars)									
Without REITs	32,984	38,523	45,300	51,759	54,958	59,211	65,781	73,946	81,500
With REITs	34,680	41,790	50,801	59,740	64,679	71,452	82,203	91,444	92,019
(Percent increase)	5.1	8.5	12.1	15.4	17.7	20.7	25.0	23.7	12.9
Standard Deviation	2.0	4.0	6.0	8.0	9.0	10.0	12.0	14.0	16.0

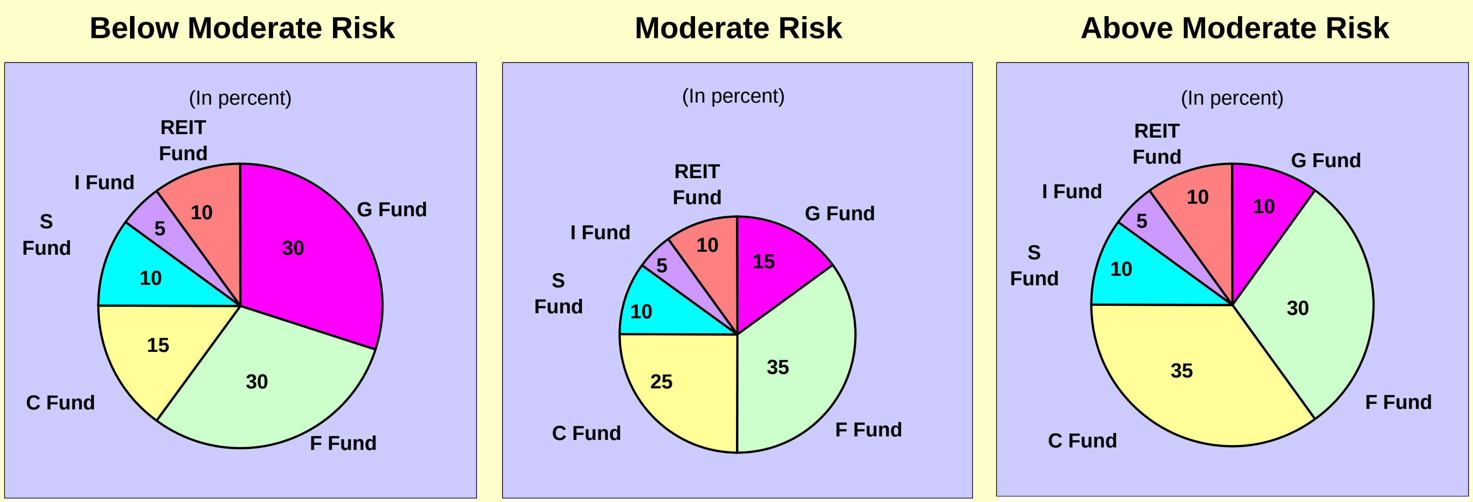
Source: Ibbotson Associates

Exhibit 12

Growth of TSP Savings With and Without REITs

(Using actual returns for five current core index funds plus a REIT index fund: 1988 - 2004)

TSP Investment Allocations for Selected Levels of Portfolio Risk[1]



Growth of $10,000

	Below Moderate Risk	Moderate Risk	Above Moderate Risk
Without REITs	$43,594	$48,278	$52,121
With REITs	$46,358	$51,460	$55,716
(Percent increase)	6.3	6.6	6.9

Source: Ibbotson Associates, NAREIT.

[1] Note: Investment allocations should not be interpreted as recommended allocations but only as allocations pertaining to different levels of risk.

Exhibit 13

Effective Investment Allocations to REITs Through Current TSP Equity Funds

(As of March 31, 2005)

REITs Represented in TSP Equity Funds	Number of REITs in Index	REIT Market Weight[1] (In percent)
C Fund (Standard & Poor's 500 Index)	7	0.53
S Fund (Dow Jones Wilshire Associates 4500 Completion Index)	186	6.31

Effective REIT Allocations When Investing in TSP Equity Funds

Hypothetical C Fund or S Fund Allocations in Percent	Effective REIT Allocations (In percent)	
	C Fund	S Fund
5	0.03	0.32
10	0.05	0.63
15	0.08	0.95
20	0.11	1.26
25	0.13	1.58
30	0.16	1.89
35	0.19	2.21
40	0.21	2.52
45	0.24	2.84
50	0.27	3.16
55	0.29	3.47
60	0.32	3.79
65	0.34	4.10
70	0.37	4.42
75	0.40	4.73
80	0.42	5.05

Sources: National Association of Real Estate Investment Trusts, Standard & Poor's, Wilshire Associates.

[1] Market weightings determined by equity market capitalization.